

Figure 1

$\omega_1, \omega_2, \dots, \omega_N$ are the carrier frequencies of the channels. The input signals z_1, z_2, \dots, z_N are assumed to be bandpass signals centered at $\omega_1, \omega_2, \dots, \omega_N$ respectively. The output signals y_1, y_2, \dots, y_N are the baseband signals.

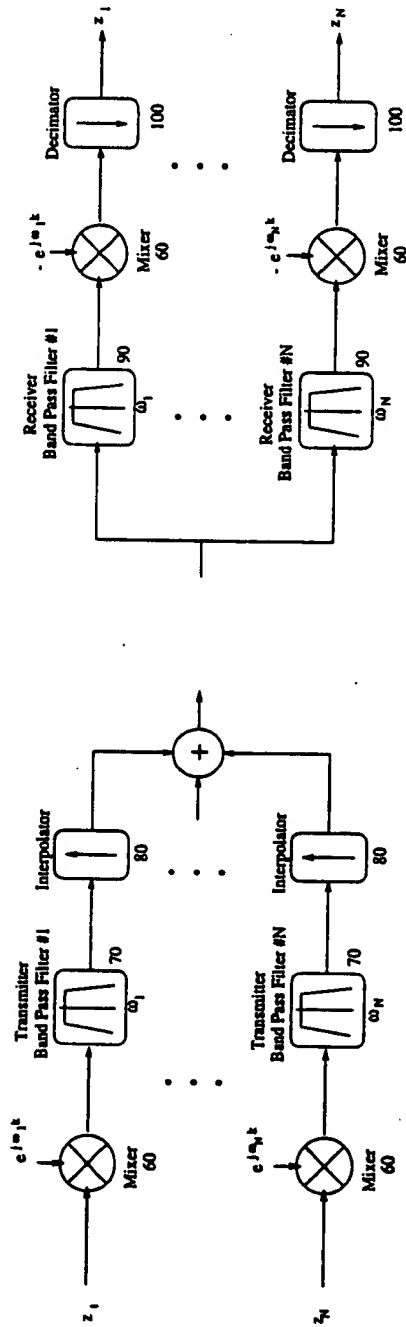
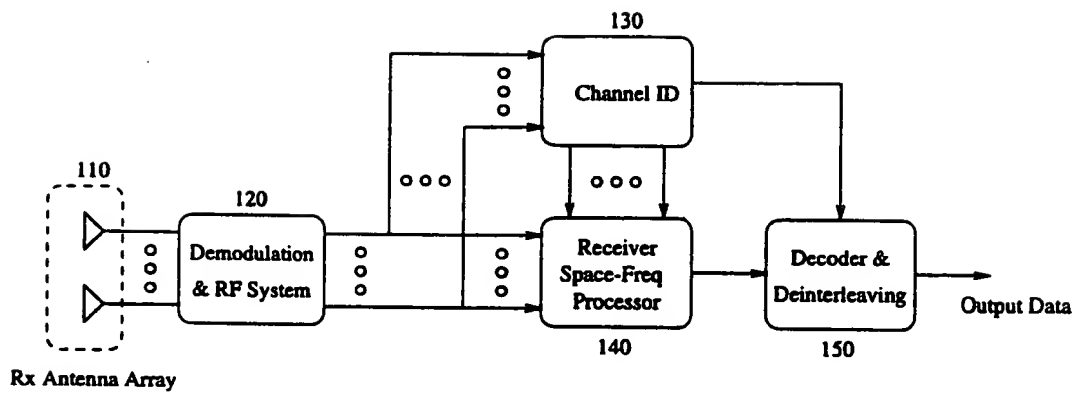


Figure 2



Multipath can be more than one reflected or refracted path in a wireless propagation channel with antenna elements that have one polarization.

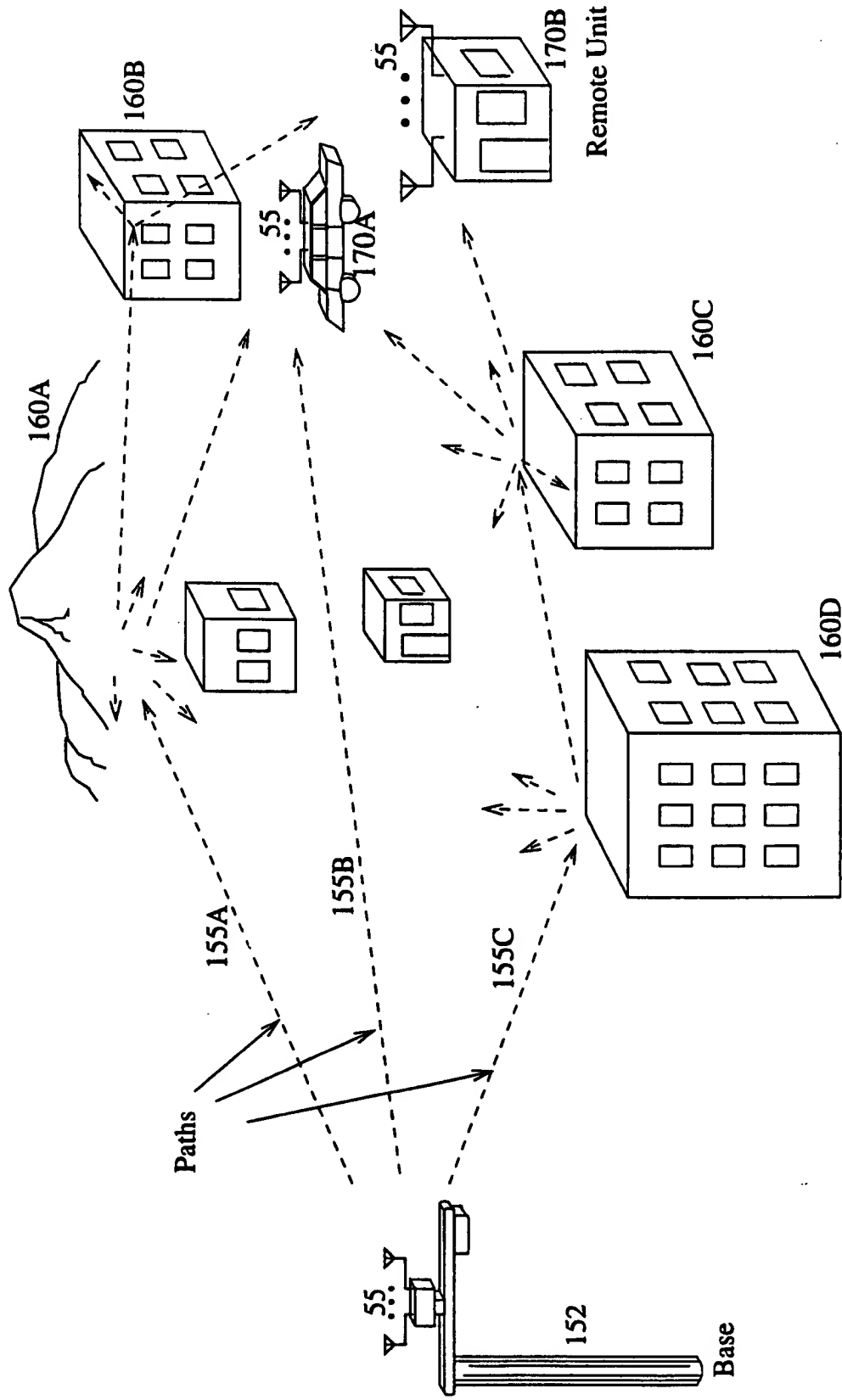


Figure 4

Multipath can be one or more paths with polarization A and one or more paths with polarization B. The two sets of paths may or may not be orthogonal.

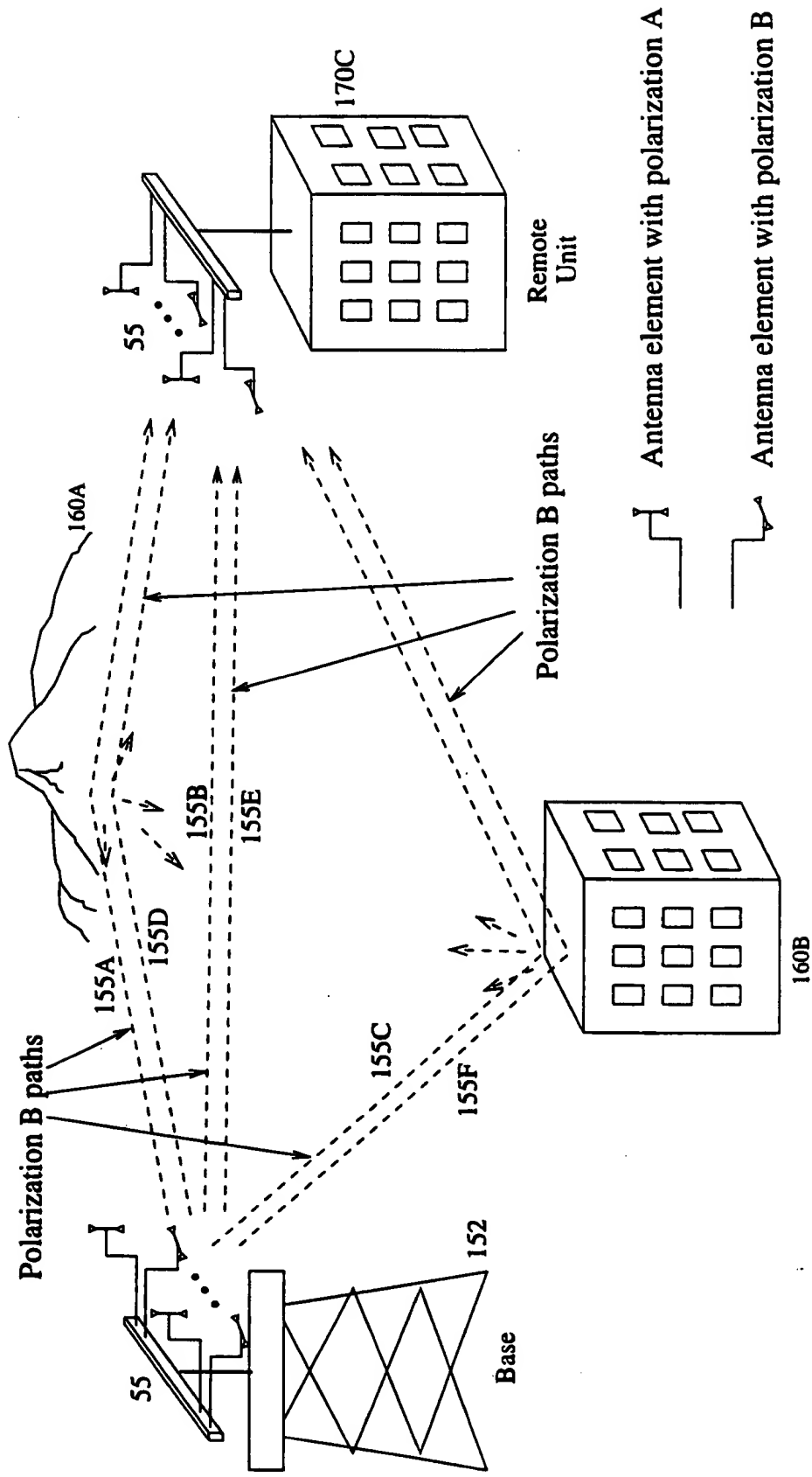


Figure 5

Multipath can be one or more paths between a remote and one radio port
and one or more paths between the remote and another radio port.

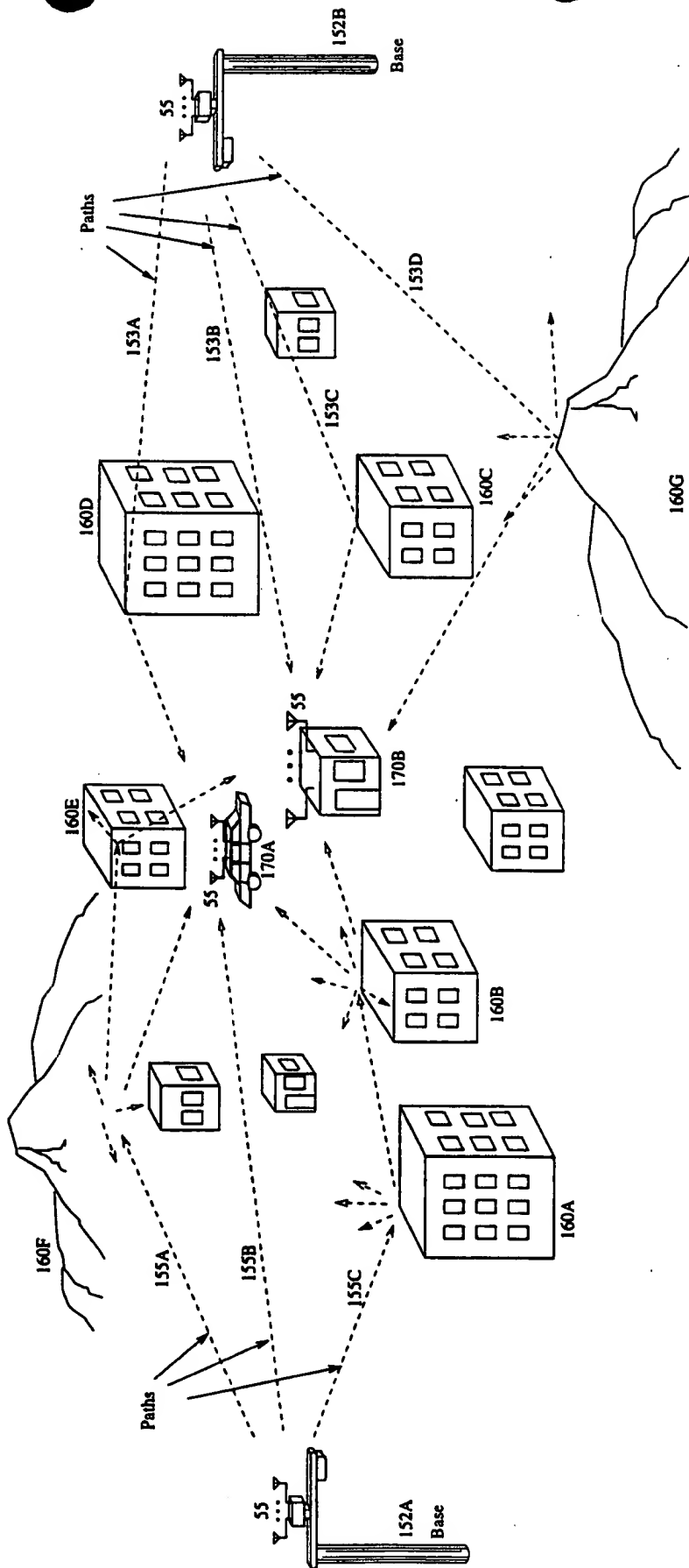


Figure 6

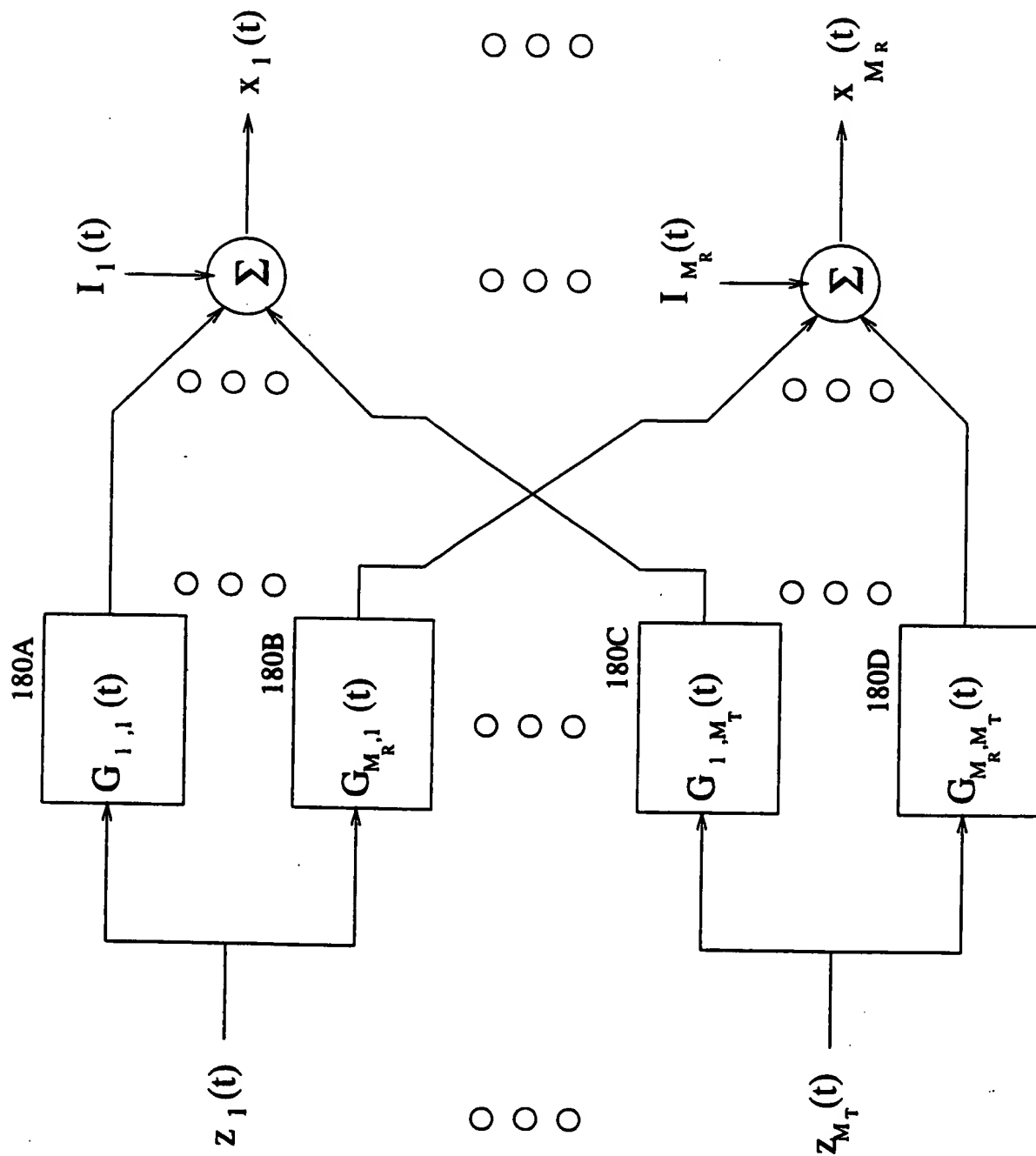


Figure 7

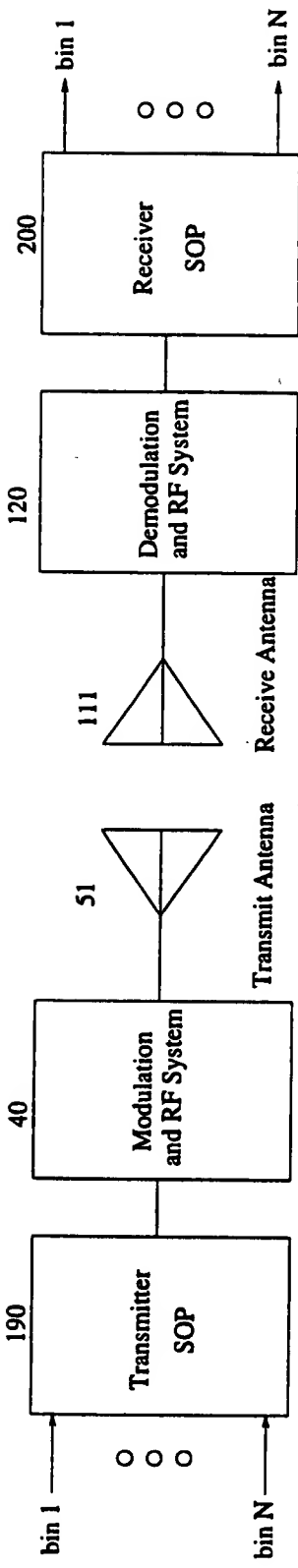


Figure 8

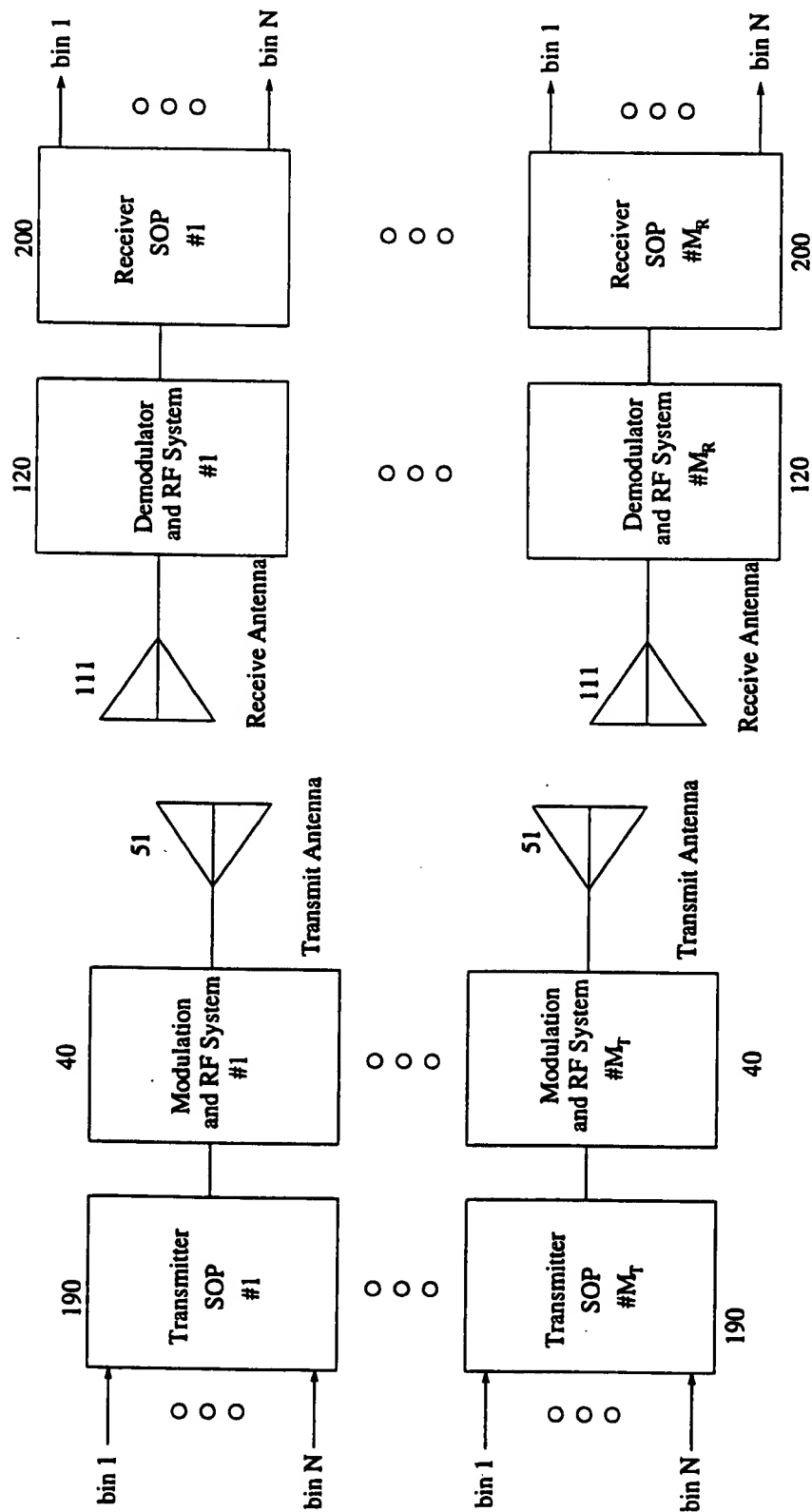


Figure 9

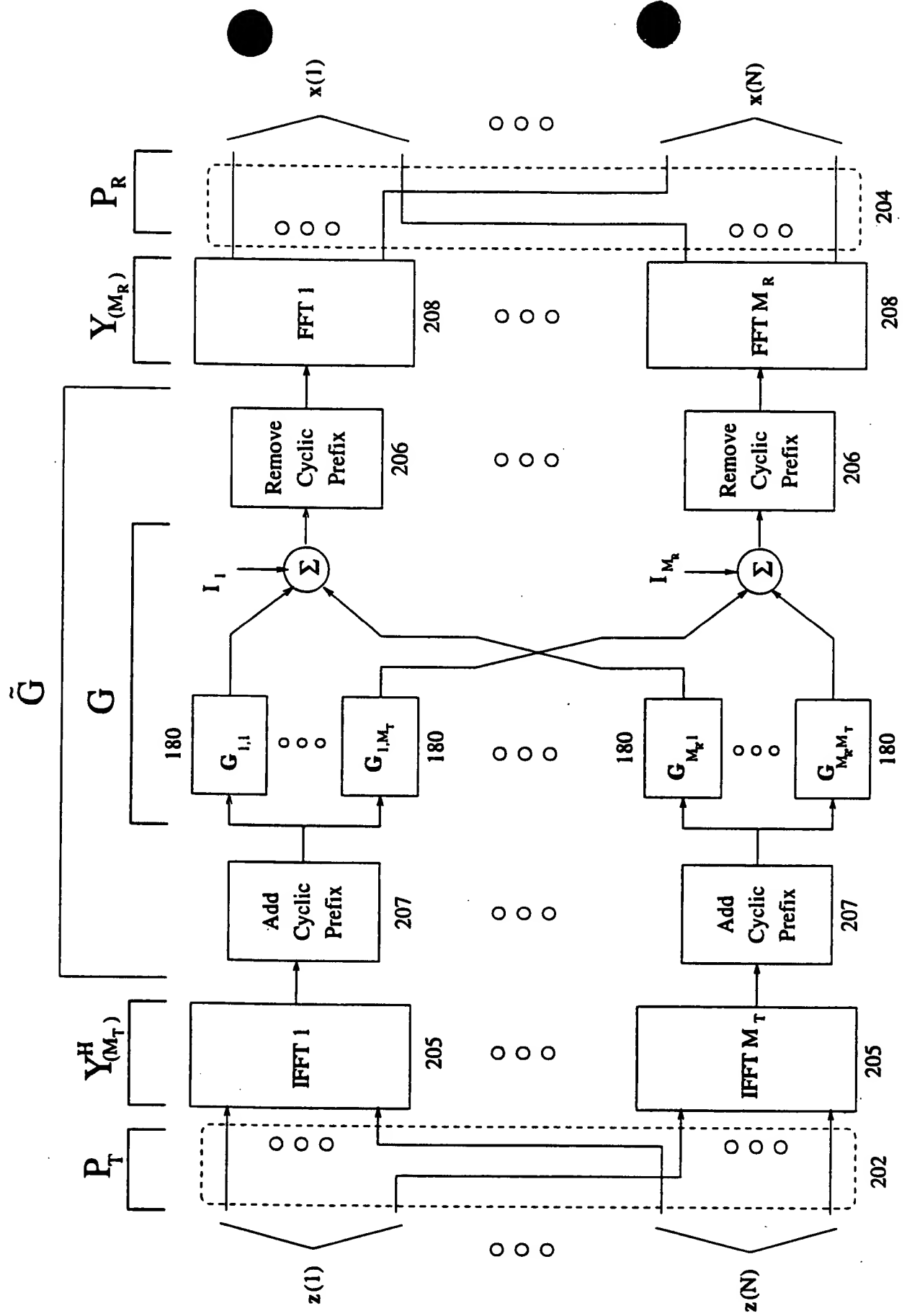
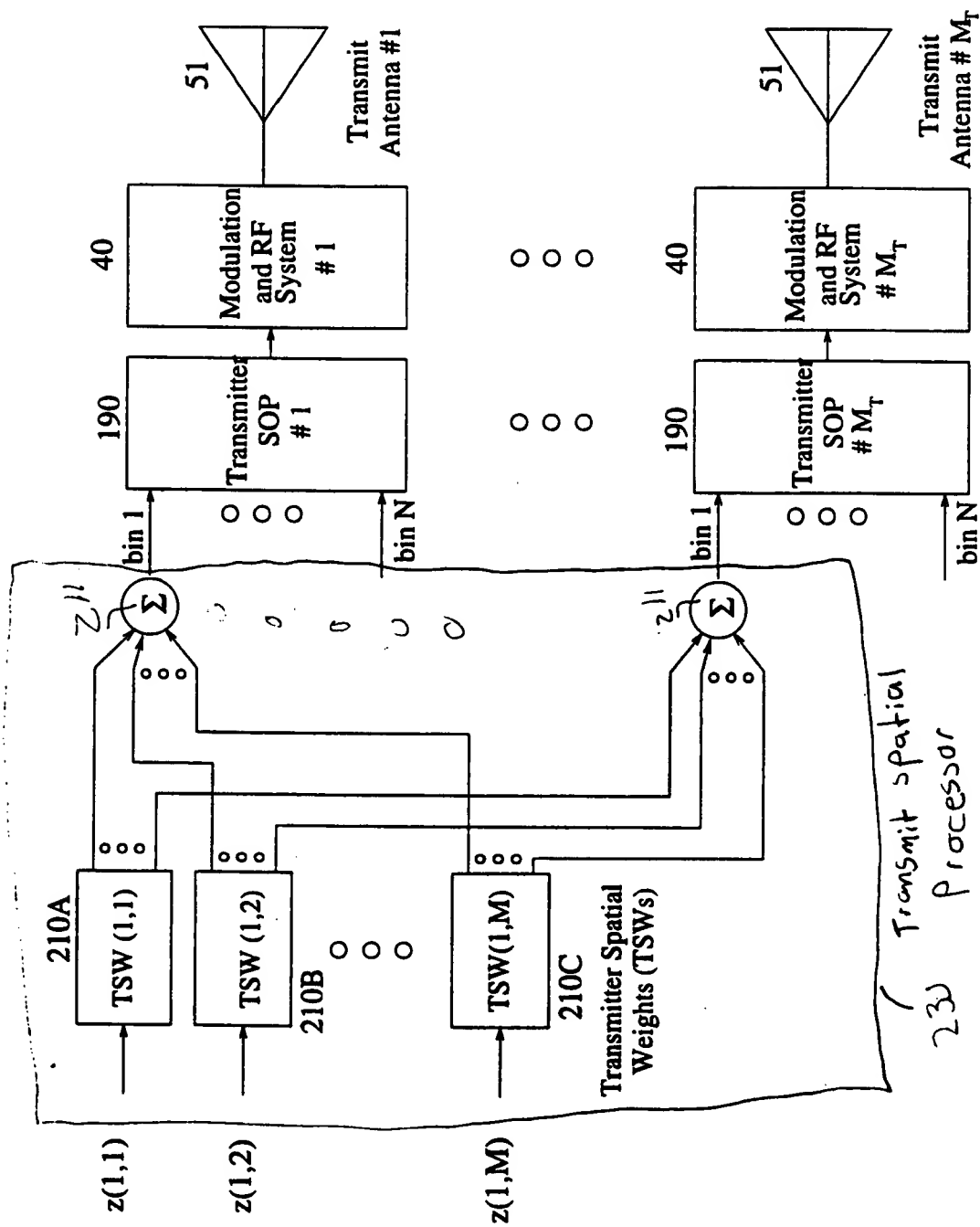


Figure 10



F. 500 11

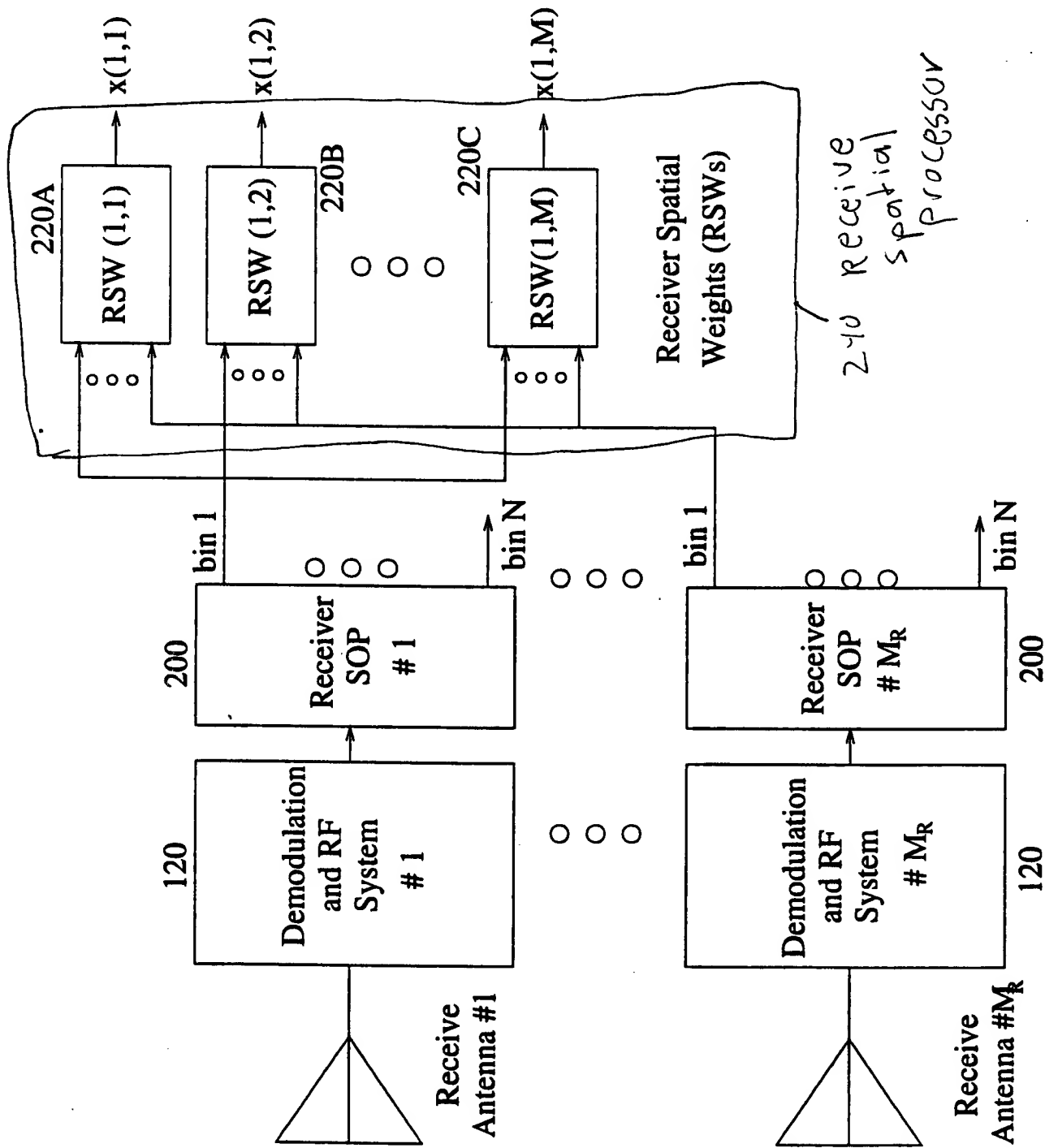


Figure 12

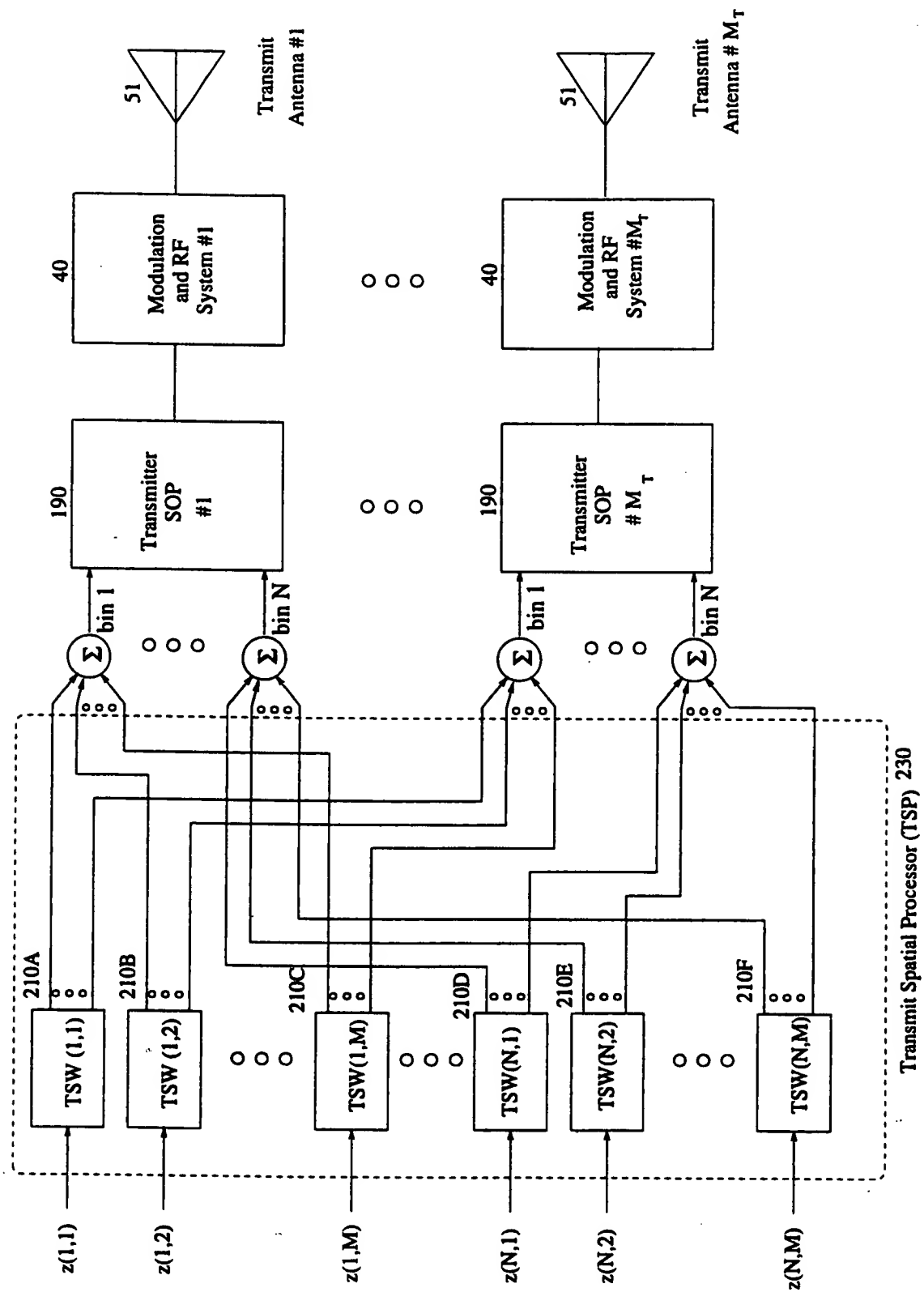


Figure 13

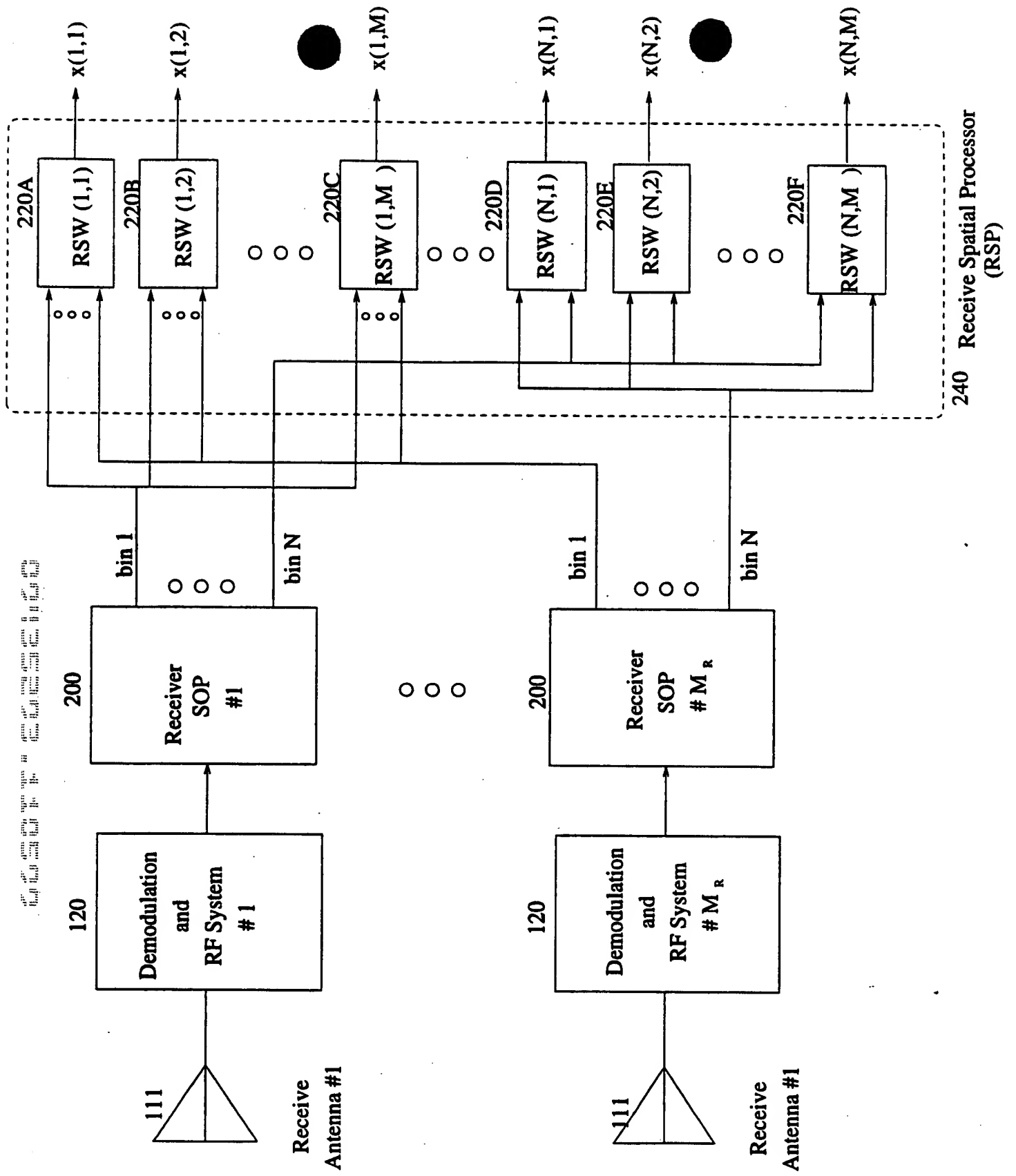


Figure 14

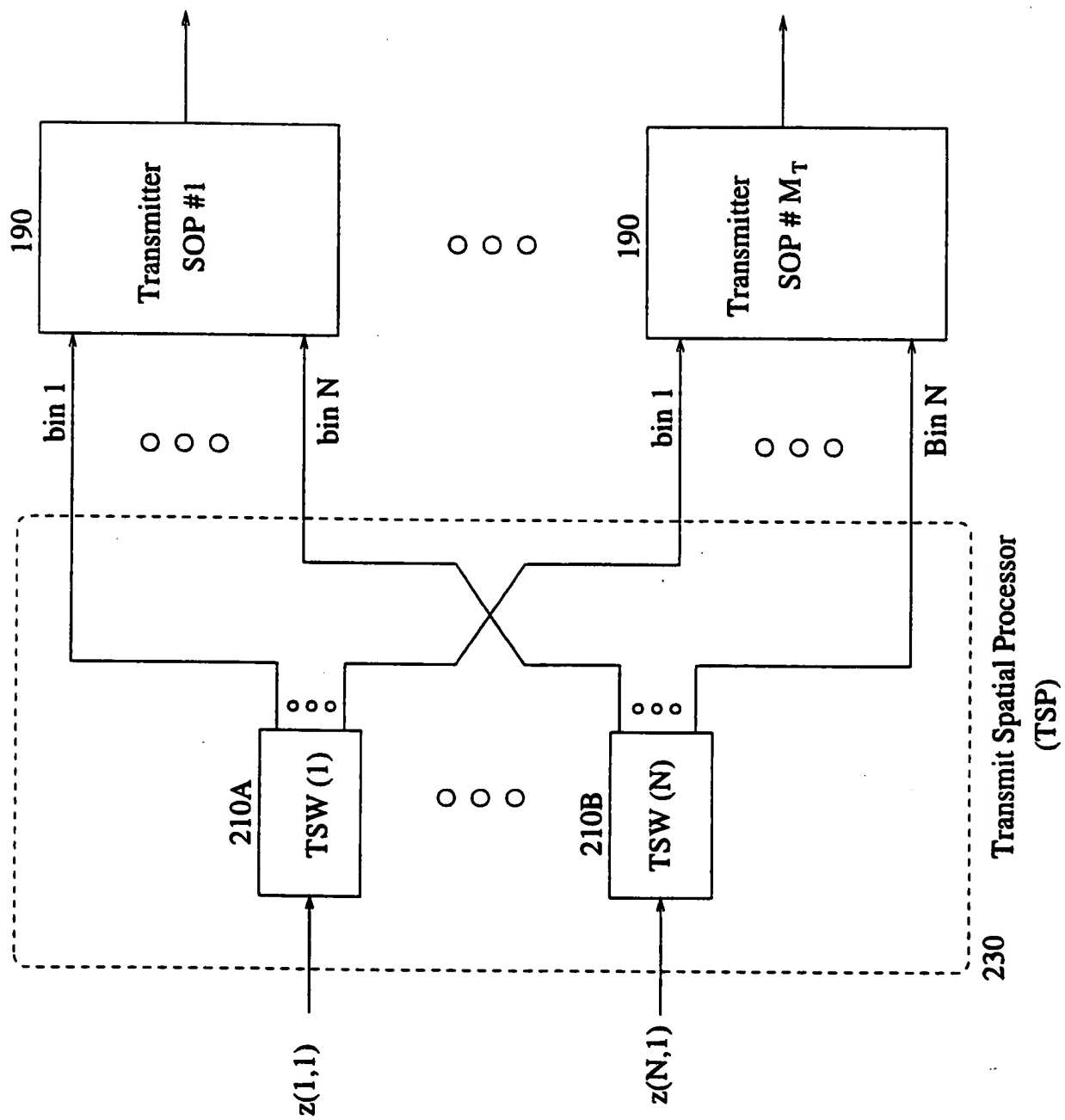


Figure 15

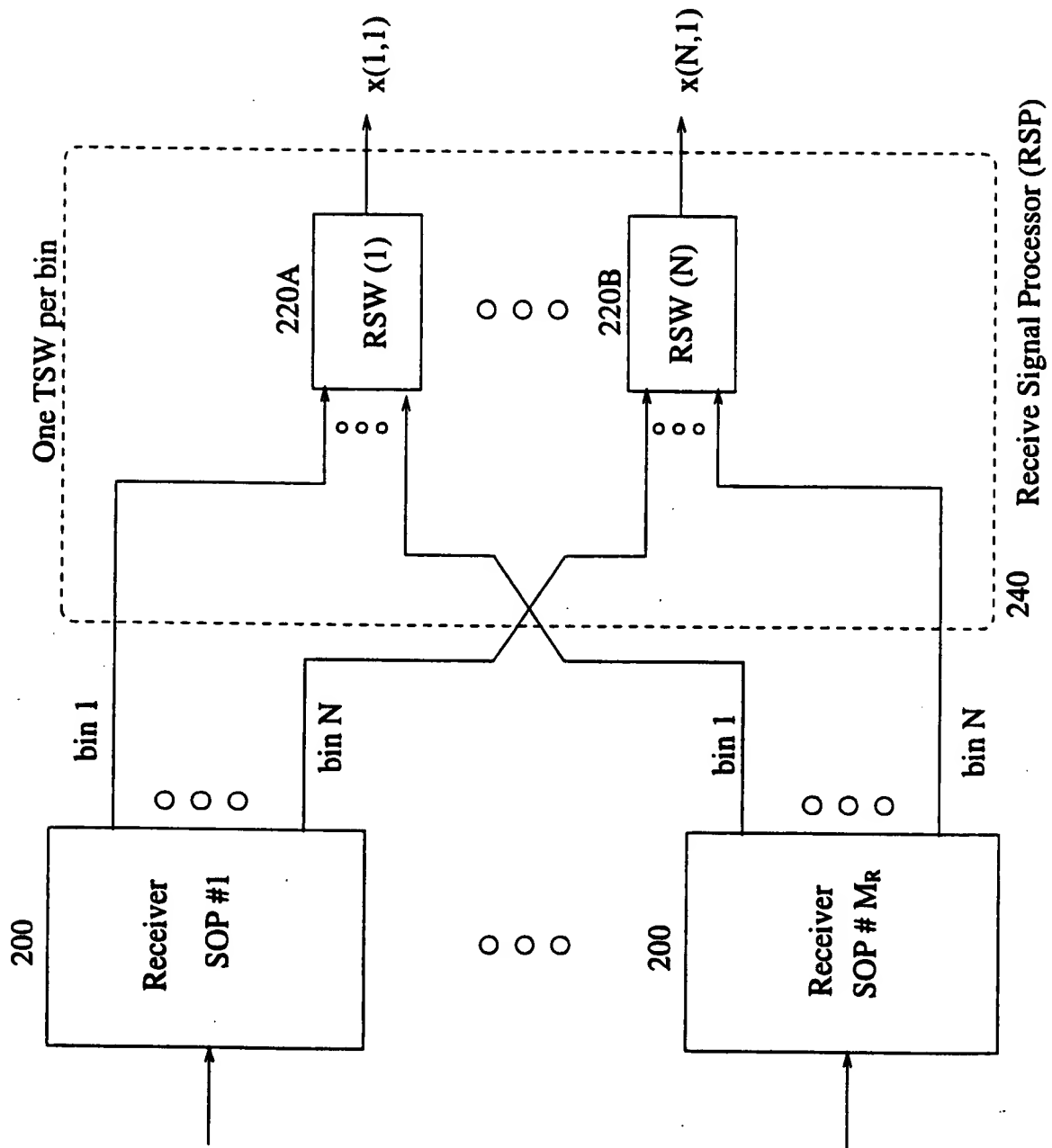
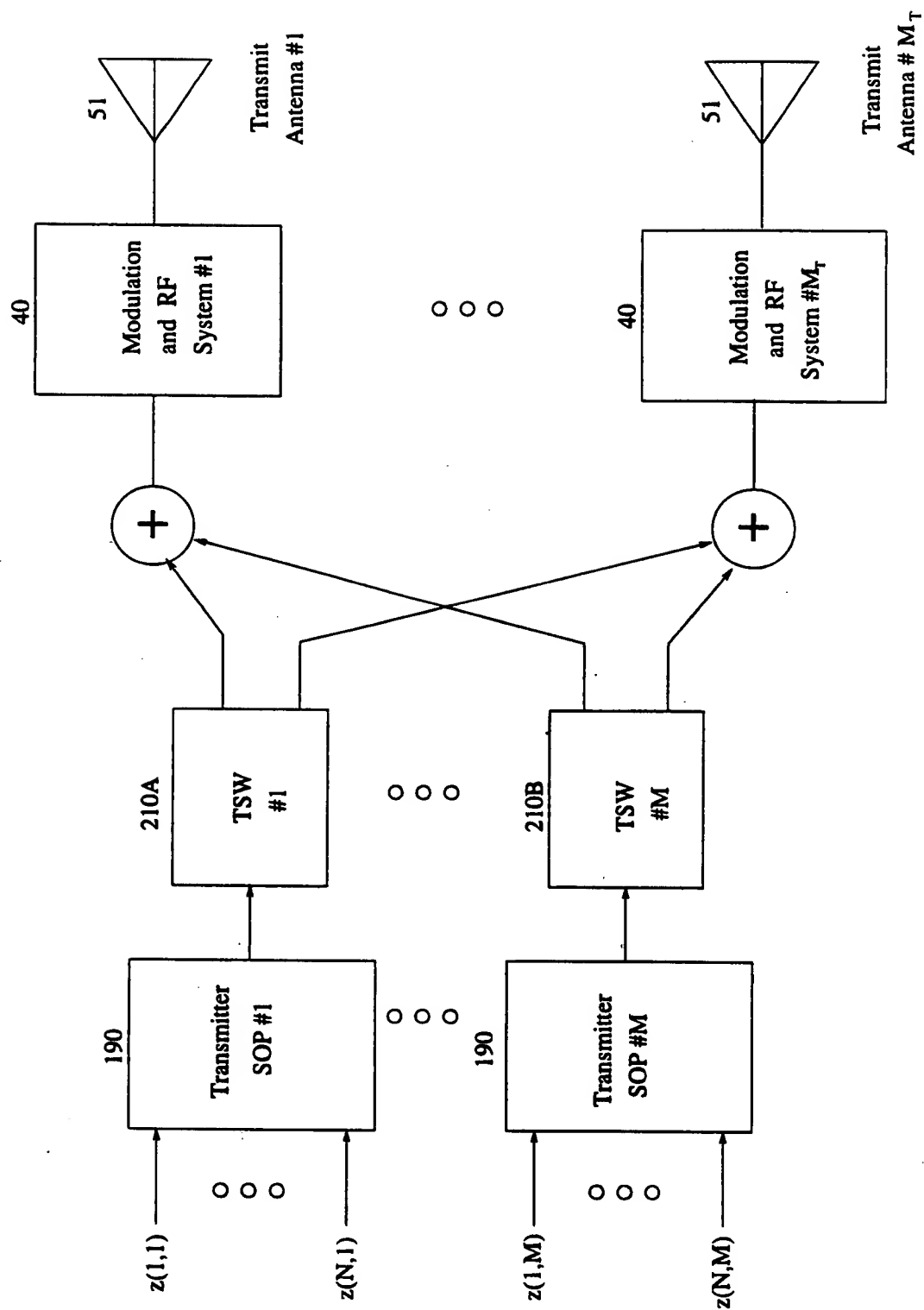


Figure 16



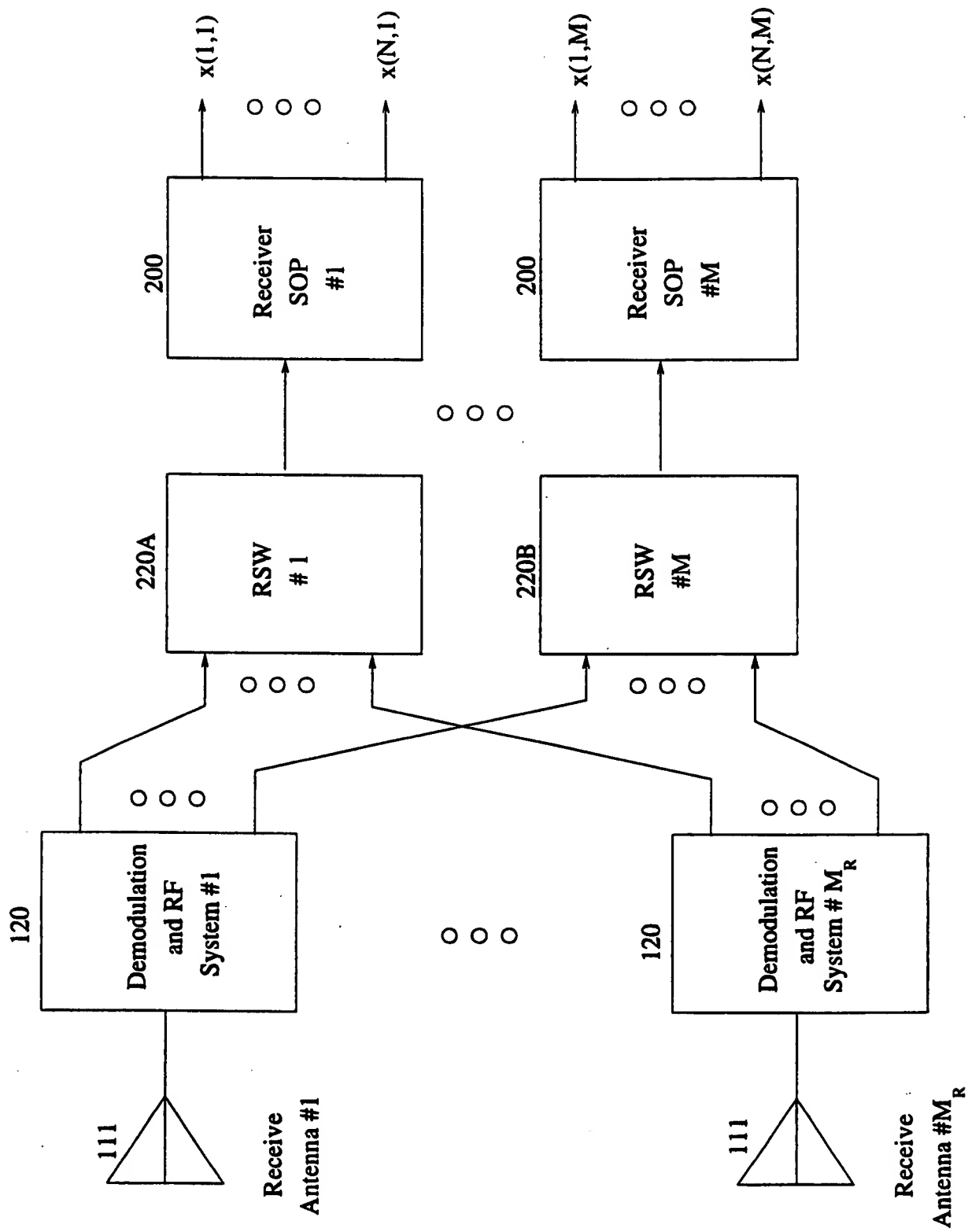


Figure 18

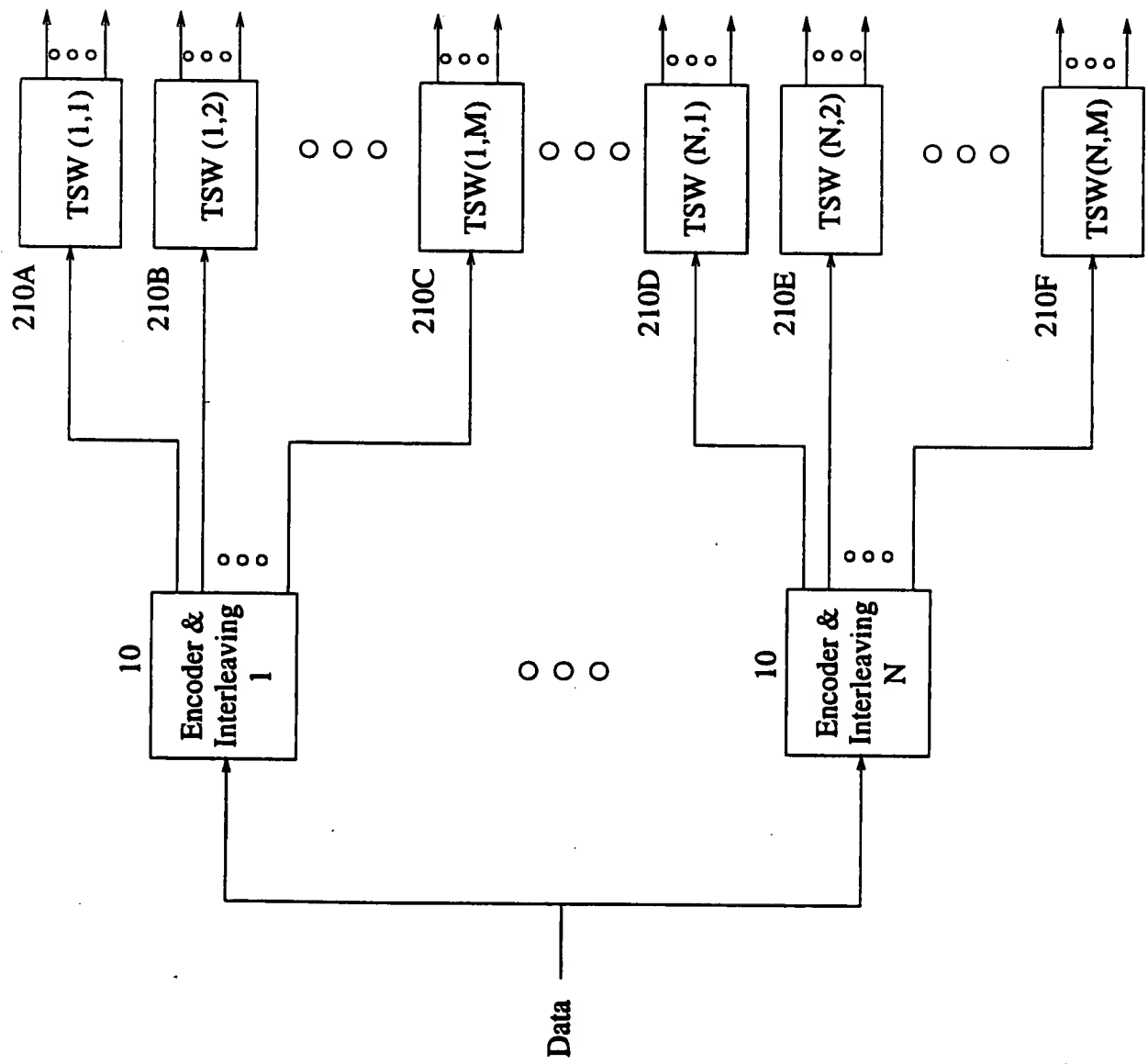


Fig. 19.

FIG. 20 is a block diagram of a transmitter system. The system includes a Data input, a series of Encoder & Interleaving blocks (1, 2, ..., M), and a series of Transmitter Spatial Weighting (TSW) blocks (1,1, 1,2, ..., 1,M, ..., N,1, N,2, ..., N,M). The Data input is connected to the Encoder & Interleaving blocks. The output of the Encoder & Interleaving blocks is connected to the TSW blocks. The TSW blocks are connected to the output of the system.

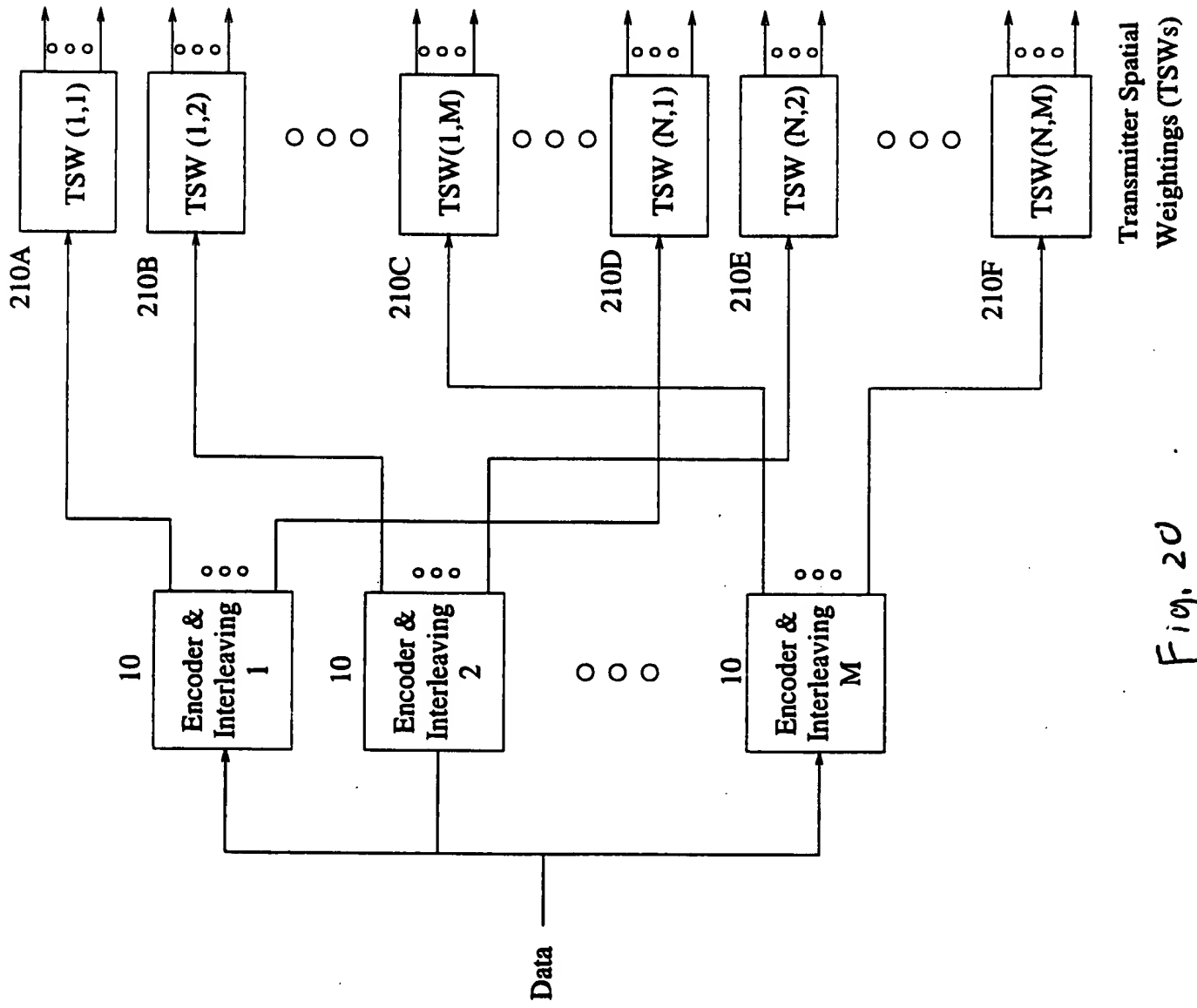


Fig. 20

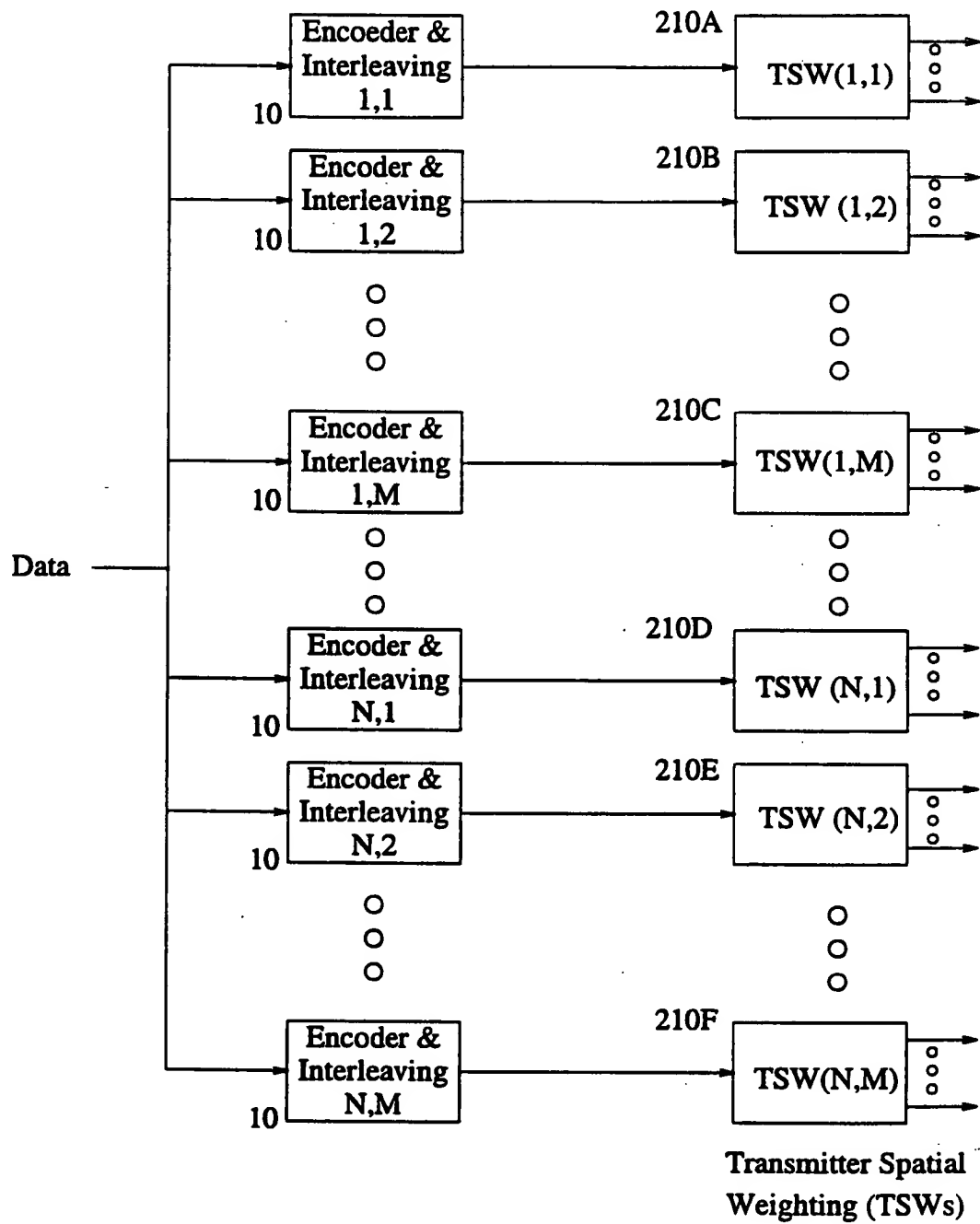


Fig. 21

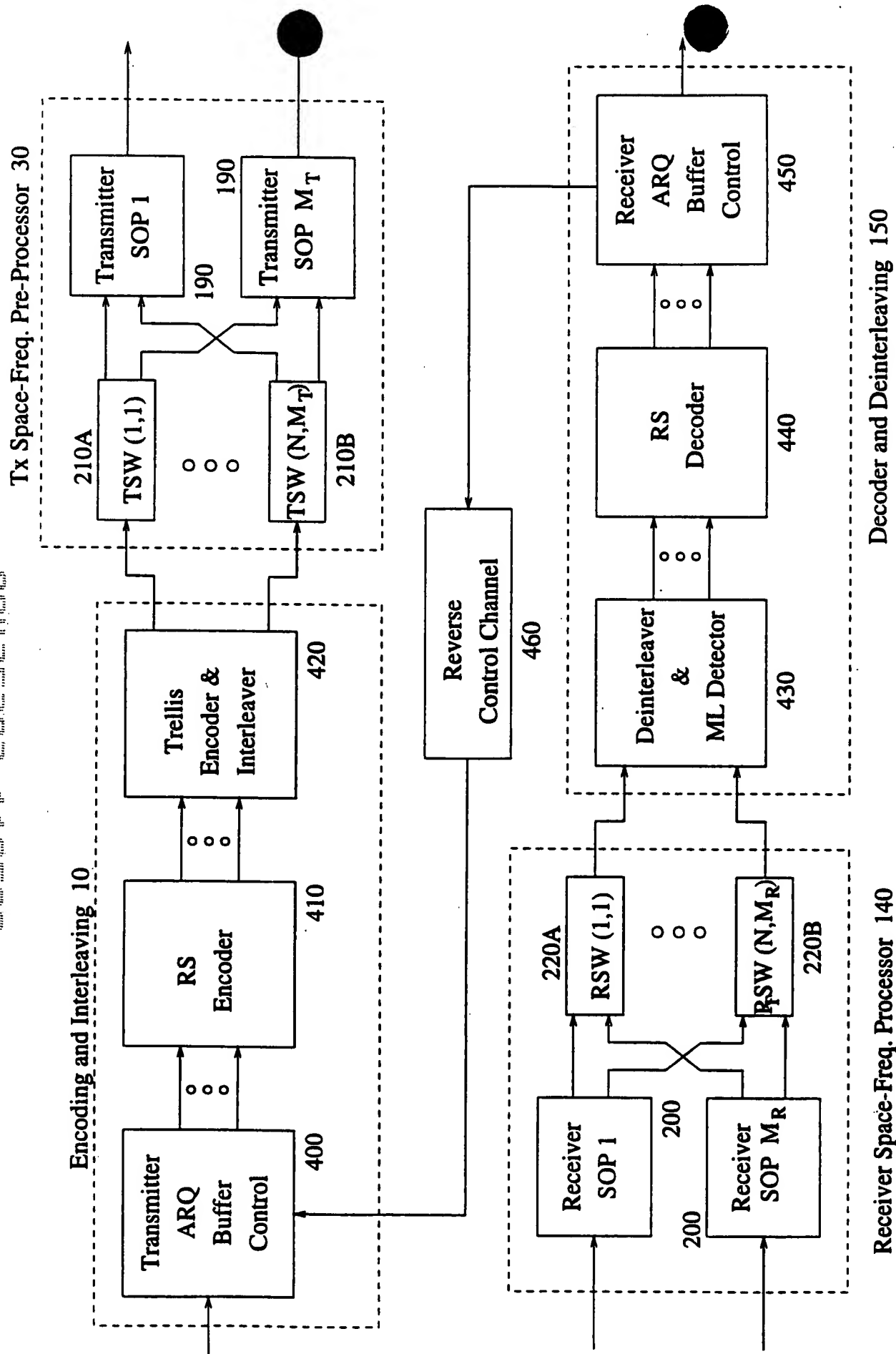


Fig. 22

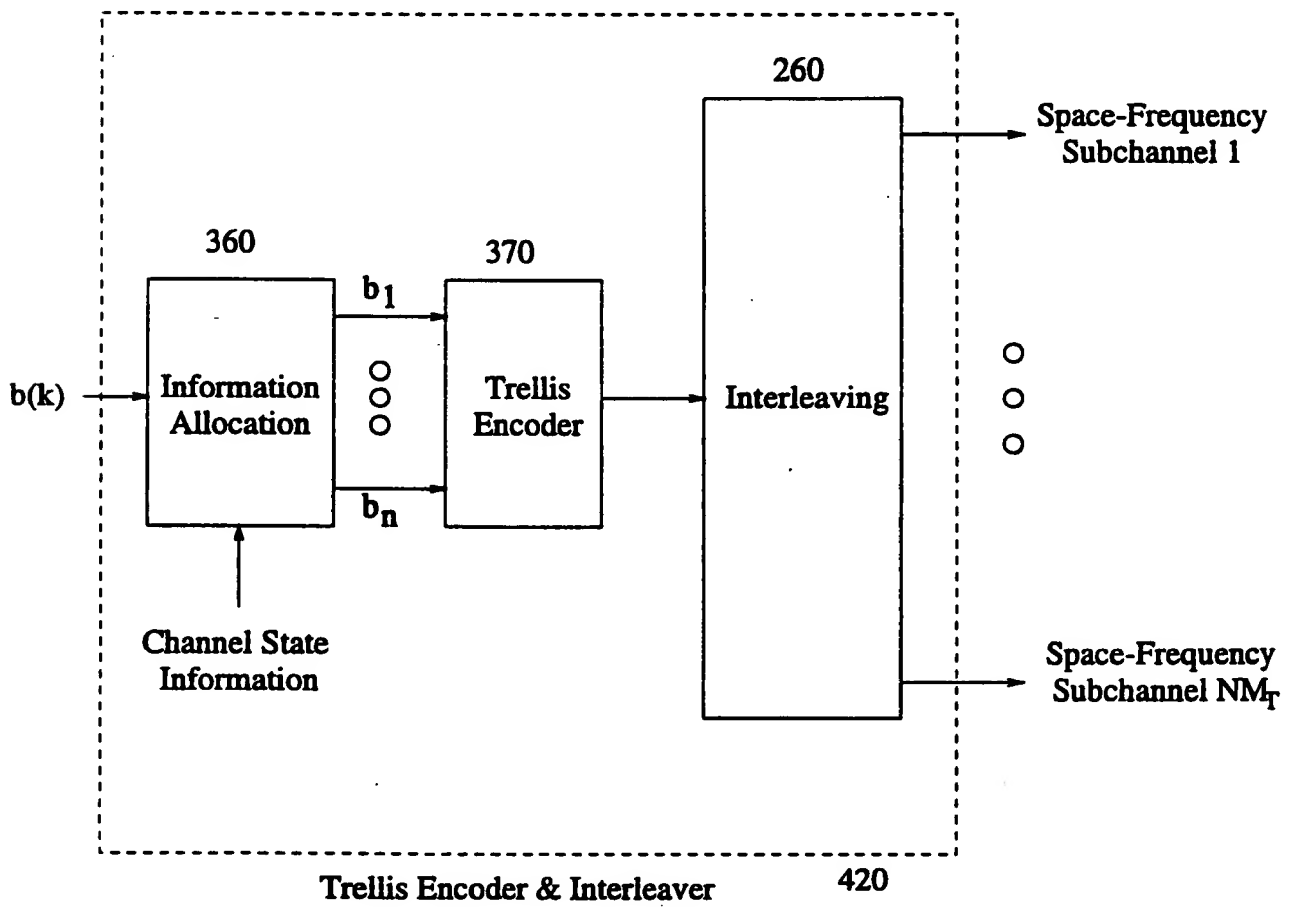


Fig. 23

FIG. 24 is a block diagram of a transmitter system 200. The system includes an input bit sequence $b(k)$ which is processed by a symbol encoding block 250. The output of block 250 is fed into a symbol sequence demultiplexer 300. The demultiplexer 300 is part of a symbol interleaver 260, which also includes a transmit symbol routing block 310. The routing block 310 directs the data to multiple transmitter SOP blocks (190), specifically Transmitter SOP #1 and Transmitter SOP #M_T. Each SOP block outputs data to a corresponding modulation and RF system block (40), labeled Modulation and RF System #1 and Modulation and RF System #M_T. These systems are connected to Transmit Antenna #1 and Transmit Antenna #M_T, respectively. The entire system is controlled by a Transmitter Spatial Processor 230.

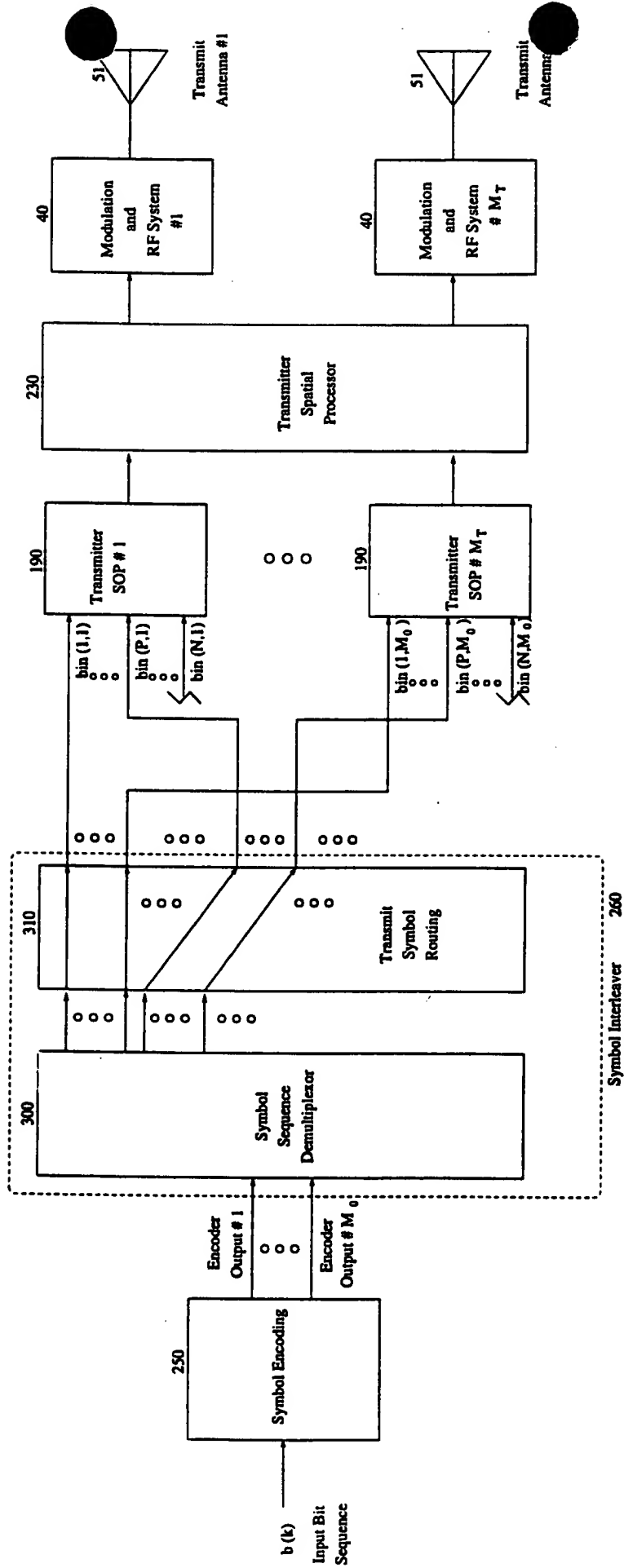


Fig. 24

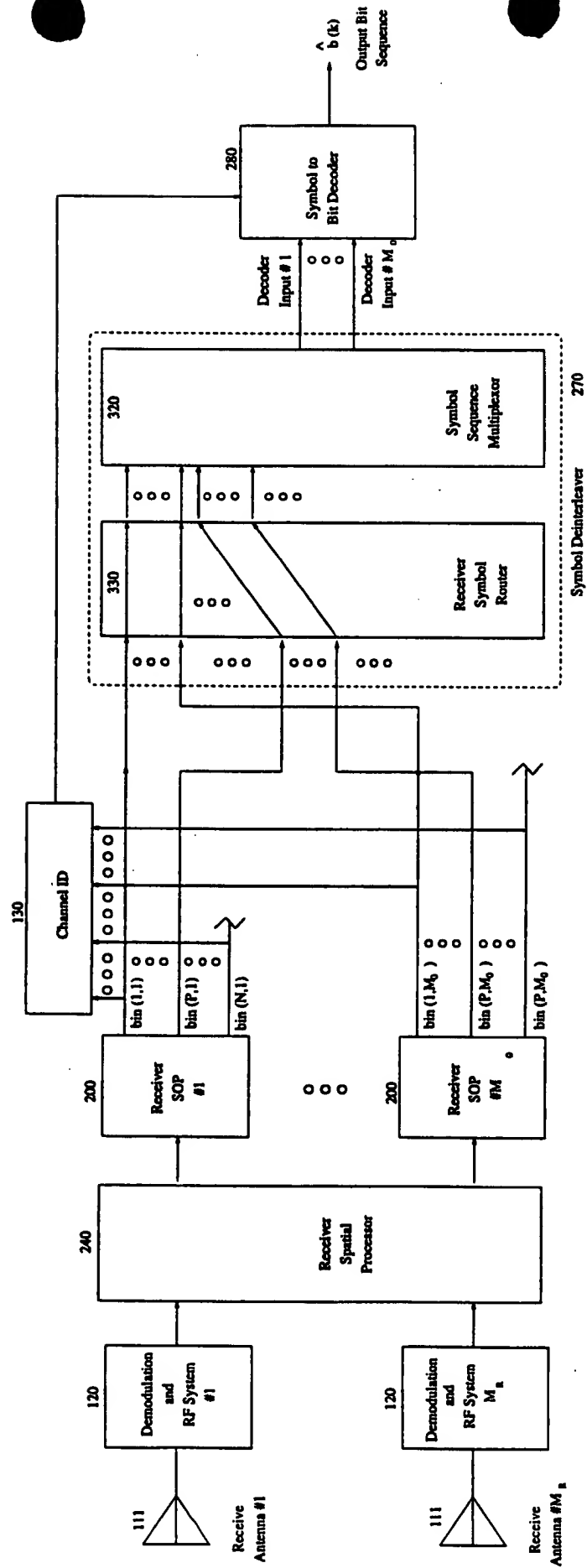


Fig. 25

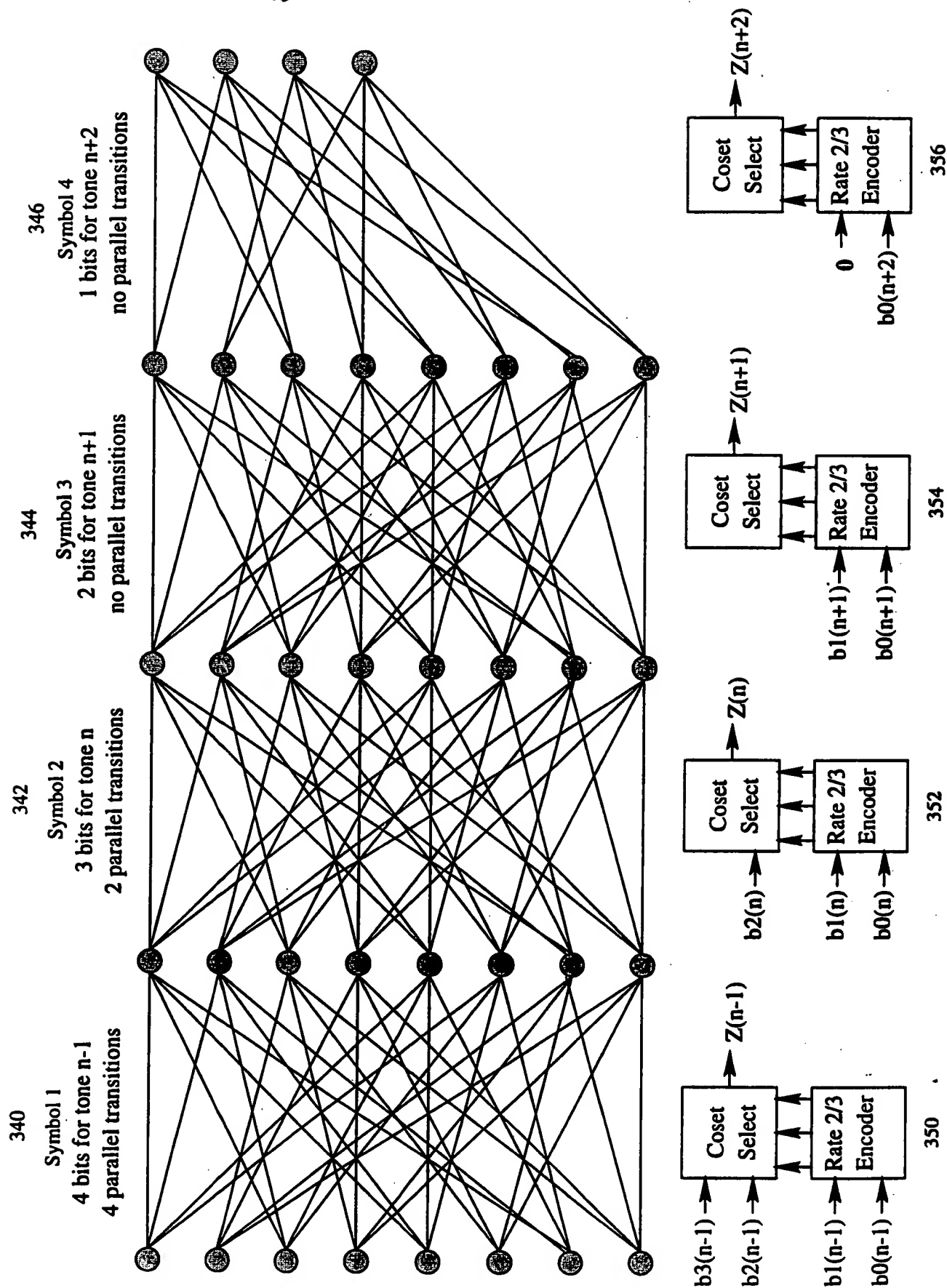


Fig. 26